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MIGRATION OF BIRDS IN N.E. LINCOLNSHIRE DURING THE AUTUMN OF 1900.

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THE chief feature of the last autumn passage was the almost total absence of visible migration—indeed, the scarcity of the smaller land birds was quite unprecedented in my experience. The number of shore birds also was far below the average.

The prevailing winds were from the W. and N.W., and the weather on the whole was unsettled and showery. The only movement which amounted to a “rush” occurred in mid-October, lasting from the 13th to the 20th, and consisted almost exclusively of our common winter visitants, most of which were present in their usual numbers.

No rare birds were met with in the district, but among the scarcer visitors may be mentioned the Bittern, Red-necked Phalarope, Wood-Sandpiper, and Little Auk.

The list of absentees is more noteworthy, comprising the Stonechat, Kingfisher, Great Titmouse, Goldfinch, Short-eared Owl, Buzzard, and Wood-Pigeon. I have never previously known the Kingfisher to be absent from the coast during the autumn migration, and the same remark applies to the Short-eared Owl. The Wood-Pigeon was omitted from my last year’s notes, but a considerable immigration took place after they were written, about the middle of January. This year my keeper,

writing at the end of February, said that he did not believe that any Pigeons had come in, as at that time they were not more numerous than in summer.

Turdus viscivorus, Linn. Mistle-Thrush.—These Thrushes were assembled in large flocks by the early part of July, and remained in great abundance throughout the autumn. On Oct. 13th I noticed a considerable number in the coast hedges.

T. musicus, Linn. Song-Thrush.—The passage of this species commenced late. A few appeared in hedges near the coast on Oct. 13th; they were fairly numerous on 17th, and the migration continued until the end of the month. A few appeared again on Nov. 12th, with Redwings and Blackbirds.

T. iliacus, Linn. Redwing.—A few Redwings passed over Grainsby on the morning of Sept. 27th. The principal immigration, however, took place on Oct. 17th and 18th, when these birds were very abundant in the vicinity of the coast, and along the sea-bank, with Song-Thrushes, Ring-Ouzels, and Green-finches. A few again appeared on the coast on Nov. 12th, and from this date to the end of the month Redwings swarmed in all suitable coverts at roosting-time.

T. pilaris, Linn. Fieldfare.—I did not notice the Fieldfare on the coast at all. A few appeared in Grainsby Park on the morning of Oct. 22nd, and on the 26th I saw a small flock in Waith fen. On the mornings of Nov. 5th and 18th I observed small flocks of Fieldfares passing to S. over Grainsby. None, however, remained in the district, and the species was entirely absent when I left Lincolnshire at the end of the month.

T. merula, Linn. Blackbird.—The passage of this species, though not so heavy as that of 1899, was more extended, lasting for nearly two months. The first flight, on Sept. 26th, consisted almost entirely of young cocks. On the following day very few Blackbirds remained on the coast, but among these were a few old cocks. On Oct. 29th another large immigration took place, consisting of adult birds of both sexes, a great majority being cocks. On Nov. 8th large numbers again appeared in the coast hedges; these were mostly old males, with a few hens and scarcely any young birds. On 12th they were not quite so abundant as on 8th, about two-thirds being old cocks, the rest



old hens and a very few young cocks. Blackbirds were much scarcer on the coast on Nov. 15th, almost all being adults, and cocks largely in excess of hens. By Nov. 20th the passage was practically over, scarcely a bird remaining in the coast hedges.

T. torquatus, Linn. Ring-Ouzel.—A single bird appeared in a hedge near the coast at North Cotes on Oct. 13th. On 25th one was seen in Grainsby Park, and a second found dead. On 28th two were seen near the same place, and one remained until the 31st.

Saxicola oenanthe (Linn.). Wheatear.—A few Wheatears appeared along the sea-bank on July 16th, an unusually early date. I saw no more until Aug. 10th, when a good many arrived, frequenting both the sea-coast and pea-fields adjoining. The passage was over by the middle of September, but I saw single birds on Sept. 19th and Oct. 1st.

Pratincola rubetra (Linn.). Whinchat.—A few in turnip-fields at North Cotes on Sept. 19th.

Ruticilla phoenicurus (Linn.). Redstart.—There was no visible migration of this species, the only indication of it being the appearance, on Sept. 19th, of a single individual in a hedge near the coast at North Cotes.

Erithacus rubecula (Linn.). Robin.—Scarcely any migration. A few came in with Blackbirds and a single Goldcrest on Sept. 26th, and again a few took part in the mid-October "rush" on 17th and 18th of that month.

Sylvia cinerea (Bechst.). Whitethroat.—Many appeared in hedges near the sea-bank on the unusually early date of Aug. 8th, but only one or two remained on 10th. A few came in again with Pied Flycatchers on Sept. 7th. I saw three or four on 19th, and one or two on 20th.

S. curruca (Linn.). Lesser Whitethroat.—I shot a single bird of this species from a hedge near the sea-bank at Marsh-Chapel on Oct. 17th.

Regulus cristatus, R. L. Koch. Goldcrest.—This usually abundant migrant was almost entirely absent. I shot one at North Cotes on Sept. 26th, and saw a couple on Oct. 20th, all in hedges near the coast.

Phylloscopus trochilus (Linn.). Willow-Wren.—One Willow-

Wren with Whitethroats on Aug. 8th at North Cotes, and a second near the same spot on Sept. 19th.

Acrocephalus phragmitis (Bechst.). Sedge-Warbler.—A single bird in a hedge near the sea-bank on Aug. 8th, undoubtedly an immigrant. Last seen Sept. 22nd.

Accentor modularis (Linn.). Hedge-Sparrow.—An insignificant migration as compared with that of the two previous years. It took part in the mid-October "rush," and was fairly numerous in the coast hedges on Oct. 17th, with Redwings, Thrushes, Robins, &c.

Parus cæruleus, Linn. Blue Titmouse.—The first Blue Titmouse appeared near the coast on Sept. 20th. It next appeared in small numbers on Oct. 18th and 20th, and was numerous on 29th. The migration lasted until Nov. 20th, when a few were to be seen in most of the seaside hedges.

Troglodytes parvulus, Koch. Wren.—I noticed a single bird in a hedge near the sea-bank on Oct. 13th, and on the 17th a few were present in almost every hedge near the coast.

Motacilla lugubris, Temm. Pied Wagtail.—Far scarcer and later than usual. It was fairly abundant in the vicinity of the coast on Sept. 22nd. I noticed a couple at Grainsby on Nov. 14th.

M. melanope, Pall. Grey Wagtail.—One—a young bird—running about on the top of the greenhouse at Grainsby on Oct. 14th.

M. raii (Bonap.). Yellow Wagtail.—A fine old bird by the side of a creek at Tetney on July 23rd, and a couple of young birds at North Cotes on Sept. 20th.

Anthus pratensis (Linn.). Meadow-Pipit.—Very numerous along the coast and in neighbouring turnip-fields on Sept. 19th.

A. obscurus (Lath.). Rock-Pipit.—The first Rock-Pipit on the side of North Cotes Sluice on Sept. 26th, and about half a dozen on the "fitties" on Oct. 17th.

Muscicapa atricapilla, Linn. Pied Flycatcher.—Two or three Pied Flycatchers on Sept. 7th, with Whitethroats, and a single bird which I shot on Oct. 18th—an exceptionally late date.

Hirundo rustica, Linn. Swallow.—Thousands of Swallows along the coast at Tetney and North Cotes on Sept. 20th. They

began to get scarce during the first week of October, but on the 10th I noticed a large flock passing S. over Grainsby at such an immense height that they were scarcely visible, looking like grains of sand. Last seen Oct. 15th.

Ligurinus chloris (Linn.). Greenfinch.—Very abundant in reeds and hedges near the coast on Oct. 17th. The flocks consisted of both males and females, and, I think, some young birds; about a third were old cocks. Not nearly so numerous on 18th.

Coccothraustes vulgaris, Pall. Hawfinch.—Less numerous than usual. I saw a few during the first week of November.

Passer domesticus (Linn.). House-Sparrow.—The first large flock appeared in the stubbles near the coast on Oct. 8th. The Sparrow took part in the great migratory movement of mid-October, large flocks, in company with Tree-Sparrows, Redwings, and Rocks, frequenting the fields adjoining the sea-shore on the 13th, and still larger numbers on the 29th.

P. montanus (Linn.). Tree-Sparrow.—I noticed a few Tree-Sparrows among a large flock of the common species on Oct. 8th at North Cotes, and some small flocks on the 18th. The principal immigration, however, took place in November, and the species was very abundant in the vicinity of the coast on Nov. 12th and 20th, on the latter date in large flocks. In almost every case these birds were associating with the House-Sparrow.

Fringilla cælebs, Linn. Chaffinch.—A good many Chaffinches—all old cocks—in the hedges near the coast on Oct. 13th. Again, on 20th, flocks were passing over Grainsby in the morning, and I saw many near the coast, apparently all cocks. On 25th a very large flock was feeding on the stubbles at Beesby on the wolds, and, as far as I could see, they also consisted entirely of cocks.

F. montifringilla, Linn. Brambling.—Though a great beech-mast year, Bramblings were almost entirely absent. A single bird near the sea-bank at North Cotes on Oct. 20th was the only one I noted.

Linota cannabina (Linn.). Linnet.—Very large flocks of Linnets frequented the fields near the coast and the foreshore from the middle of September to the middle of October, when they gradually disappeared.

L. flavirostris (Linn.). Twite.—A flock of about twenty Twites came in at North Cotes on the evening of Oct. 17th. On the following day I found one large flock and several small parties on stubble-fields near the coast, and on the 20th some large flocks were feeding on the "fitties."

Emberiza miliaria, Linn. Corn-Bunting.—Hundreds in the turnip-fields at North Cotes on Sept. 20th. Again, on Oct. 8th, a considerable number in the turnip-fields near the coast, and on the 13th a good many, with Yellowhammers, in the stubbles at North Cotes.

E. citrinella, Linn. Yellowhammer.—On Oct. 1st, and again on the 8th, a considerable number of Yellowhammers appeared in the coast hedges and adjoining land, and they were very abundant in the stubbles on the 13th.

E. schoeniclus, Linn. Reed-Bunting.—Several Reed-Sparrows along the coast and adjoining hedges on Oct. 17th, all being females or young. On the 29th a good many on the "fitties," and in reeds and hedges in the vicinity of the coast; and on Nov. 12th they were very abundant in the seaside hedges, males and females being present in equal numbers.

Plectrophenax nivalis (Linn.). Snow-Bunting.—Almost entirely absent. On Nov. 8th I observed a couple on North Cotes sands, one an old very white bird, the other immature.

Sturnus vulgaris, Linn. Starling.—A few small flocks of Starlings appeared on Tetney "fitties" on Aug. 10th. On Sept. 27th Starlings swarmed in flocks of many thousands everywhere on the coast marshes and on the "fitties," an enormous immigration having undoubtedly taken place during the previous night. On Oct. 13th small numbers were coming in from the sea all day until about three o'clock, and again on 17th small flocks, with Peewits, coming in from N.E. until 3.30 in the afternoon.

Corvus monedula, Linn. Jackdaw.—A few Jackdaws took part in the great migratory flight of Rooks on Oct. 20th. Once three came in alone, but the majority mingled with the flocks of their larger relatives. The direction of flight was N.W., almost in the face of a stiff N.N.W. breeze. One or two stragglers again appeared on the coast in company with Rooks on Nov. 1st.

C. corone, Linn. Carrion-Crow.—Two or three Carrion Crows appeared on Tetney "fitties" on Oct. 13th. On the 23rd I noticed over a hundred of these birds coming in to roost in Fenby Top Wood, a considerable increase in their numbers having apparently taken place about this time.

C. cornix, Linn. Grey Crow.—Two on the sea-bank at North Cotes on Sept. 27th, but no more until Oct. 8th, when a couple were seen at Grainsby. Grey Crows took part in the great movement of Oct. 20th, and were passing to N.W. along the shore all day until about 3 o'clock, either singly or in small parties of four or five flying close to the sand.

C. frugilegus, Linn. Rook.—The Rook was almost the only bird whose immigration during the past autumn assumed unusual proportions. Commencing on Oct. 8th, the passage of this bird reached its height on the 20th, and terminated about Nov. 1st. The flight of Oct. 20th was one of the largest that I have ever witnessed. On reaching the coast I observed an unbroken stream of Rooks travelling steadily to the N.W., almost in the teeth of a stiff N.N.W. breeze. The flock was scarcely more than fifty yards wide, and the birds were flying close to the ground, only rising to clear hedges, trees, or buildings which obstructed their line of flight. I watched the passage for about half an hour, and it was still progressing when I left. Numerous other flocks, large and small, were also coming in from the sea; but the passage came abruptly to an end at one o'clock.

Alauda arvensis, Linn. Sky-Lark.—The Sky-Lark was less numerous on migration than usual. The passage took place between Oct. 12th and 20th, the direction of flight being generally N.W. On 13th, however, the flocks were moving S. And on the 20th, although the bulk were passing N.W., several flocks went S.W.

Dendrocopos major (Linn.). Great Spotted Woodpecker.—I saw one of these Woodpeckers at Fenby on Oct. 21st, and a second at Grainsby on 26th.

Cuculus canorus, Linn. Cuckoo.—On July 16th I observed two Cuckoos on hedges near the coast.

Asio otus (Linn.). Long-eared Owl.—I flushed two or three of these Owls in a small plantation near the sea shore on

Nov. 15th. They were the only Owls that I saw on the coast during the autumn.

Accipiter nisus (Linn.). Sparrow-Hawk.—First seen on the coast on Sept. 27th, and fairly numerous on Oct. 1st and 4th.

Falco peregrinus, Tunstall. Peregrine.—First seen on Oct. 14th at Brigsley. A second perched on a dead tree in Grainsby Park on 19th, and on 30th one flying over Fenby Wood.

F. æsalon, Tunstall. Merlin.—Only seen once—a young female—at Saltfleet Haven on Sept. 22nd.

F. tinnunculus, Linn. Kestrel.—Fairly numerous on the coast during the autumn, particularly between Sept. 20th and Oct. 4th.

Ardea cinerea, Linn. Heron.—Heros were very numerous on the flats at Tetney by the middle of July, mostly young birds. On Oct. 13th I saw a party of seven or eight on Grainthorpe “fitties.”

Botaurus stellaris (Linn.). Bittern.—Since I left Lincolnshire I heard that a Bittern had been shot at North Cotes on Dec. 24th.

Anser brachyrhynchus, Baillon. Pink-footed Goose.—Wild Geese were more abundant than in any recent winter. The first flock, numbering thirty-three birds, passed over Tetney Lock on Oct. 11th, and other flocks were frequently seen all through October and November. On the 14th of the latter month one of the largest migrations of Geese that I have ever witnessed took place. On that morning, between 8 and 9 o'clock, seven large flocks passed over Grainsby from W. to E. The number of birds in each flock varied from about two hundred in the largest to under thirty in the smallest, and all were well out of gunshot.

Tadorna cornuta (S. G. Gmelin). Sheld-Duck.—I saw a Sheld-Duck on a freshwater creek near the coast at North Cotes on July 16th.

Anas boscas, Linn. Mallard.—Mallards were unusually scarce on the coast throughout the winter.

Spatula clypeata (Linn.). Shoveler.—Two old female Shovelers on a pool of water at Tetney behaved as though they

had broods in the reeds on July 16th, but I could see no young Ducks of any sort.

Nettion crecca (Linn.). Teal.—The first pair appeared on July 16th, and the species had become abundant by the 30th.

Mareca penelope (Linn.). Wigeon.—I shot a couple of young birds on North Cotes sluice on Sept. 19th. A great many Wigeon visited the Humber during the winter.

Turtur communis. Selby. Turtle Dove.—Last seen on Sept. 20th; two young birds at North Cotes.

Crex pratensis, Bechst. Land-Rail.—Last seen on Sept. 24th; a single bird in a Turnip field at Tetney.

Porzana maruetta (Leach). Spotted Crake.—Only seen once; a single bird in some reeds near the coast at Tetney on Sept. 20th.

Rallus aquaticus, Linn. Water-Rail.—Appeared somewhat later than usual. I saw a couple near the coast on Nov. 8th.

Charadrius pluvialis, Linn. Golden Plover.—I saw a couple of Golden Plovers at North Cotes on Aug. 17th, and the keeper reported a flock of thirty at the same place on Sept. 1st. Some were heard passing over Grainsby early on the morning of Oct. 22nd, and a flock of about forty appeared on the coast on Nov. 20th.

Squatarola helvetica (Linn.). Grey Plover.—A few along Tetney Haven on Aug. 8th, and a considerable number on the sands and "fitties" at Grainthorpe Haven on Oct. 13th.

Vanellus vulgaris, Bechst. Lapwing.—The migration of the Peewit was an unusually heavy one, commencing on Oct. 9th, and continuing daily until the 20th. A second but somewhat smaller immigration took place between Oct. 29th and Nov. 8th. The direction of flight was N.W. in almost every case, and the passage usually came to an end about 2 o'clock in the afternoon. On one day only (Oct. 17th) it lasted until 4 o'clock. On Nov. 18th several flocks passed over to N.

Hematopus ostralegus, Linn. Sea-Pie.—Very scarce throughout the autumn. A few small flocks appeared on Oct. 8th.

Phalaropus hyperboreus (Linn.). Red-necked Phalarope.—A Red-necked Phalarope was sent to me at the end of October by a North Cotes Plover-catcher, who informed me that he had

caught a similar bird a few days previously, but had kept it too long, and allowed it to spoil (*ante*, p. 72).

Scolopax rusticula, Linn. Woodcock.—Much scarcer than usual. First appeared on Oct. 17th. The main flight, however, did not occur until Nov. 5th and 6th, in thick foggy weather with S.E. wind.

Gallinago cœlestis (Frenzel). Snipe.—Arrived early, and in considerable numbers on Sept. 19th and 26th. The principal flight, however, appeared almost simultaneously with the Woodcock between Nov. 1st and 8th.

G. gallinula (Linn.). Jack Snipe.—I shot a couple of Jacks on Sept. 26th, and found considerable numbers on Oct. 13th, 18th, and 29th.

Tringa alpina, Linn. Dunlin.—First seen July 30th. Were very scarce all the autumn.

T. canutus, Linn. Knot.—A few small flocks came in on Aug. 10th, and some larger ones on Sept. 22nd. On Nov. 20th, after some very rough weather on the North Sea, great clouds of Knot appeared on the North Cotes sands.

Totanus hypoleucus (Linn.). Common Sandpiper.—Two or three Sandpipers appeared on the marsh drains on July 16th. By the 23rd they were fairly numerous, and I saw the last on Sept. 19th.

T. glareola (Gmelin). Wood-Sandpiper.—I saw a Wood-Sandpiper on a freshwater creek near Tetney Lock on July 23rd, and another, or perhaps the same bird, on Aug. 8th.

T. ochropus (Linn.). Green Sandpiper.—I observed several of these birds on the marsh drains and creeks near the coast on July 16th. Very few remained after the middle of September.

T. calidris (Linn.). Redshank.—Unusually large flocks frequented the "fitties" at Tetney and Grainthorpe at the end of September, particularly on the 22nd and 27th.

T. canescens (Gmelin). Greenshank.—Appeared on Tetney "fitties" on Aug. 10th. Last seen on Grainthorpe "fitties" on Sept. 22nd.

Limosa lapponica (Linn.). Bar-tailed Godwit.—Very scarce. I did not see any until Oct. 8th, when a few small flocks appeared on North Cotes sands.

Numenius arquata (Linn.). Curlew.—On the nights of July 22nd and 27th I heard the cries of Curlews passing over Grainsby, apparently travelling from E. to W. A few appeared on the coast on July 30th, but were less numerous than usual until Oct. 8th, when some large flocks came in.

N. phæopus (Linn.). Whimbrel.—Two or three on the coast on July 30th. A large flock passed over Grainsby on the morning of Aug. 10th. Last seen on the coast on Sept. 22nd.

Sterna minuta, Linn. Little Tern.—A flock of six immature birds of this species on the coast at Donna Nook on Sept. 22nd. The Arctic Tern was very abundant about this time.

Mergulus alle (Linn.). Little Auk.—A living example of this species was found in a drain at the inland parish of North Thoresby by a labourer, but it was dead when it reached me. The weather in the North Sea had been extremely bad for some days previous to its appearance.

Podicipes fluviatilis (Tunstall). Little Grebe.—Two of these little birds appeared on North Cotes sluice on Oct. 13th, one of them being in perfect breeding plumage.

ON THE WINTER SINGING OF THE SONG-THRUSH (*TURDUS MUSICUS*).

By W. WARDE FOWLER, M.A.

TOWARDS the middle of last November I was struck, like many others, by the vociferous singing of Song-Thrushes; they were unusually numerous, and almost every individual seemed to be uttering some kind of song, and continuing it more or less from early morning, when the voicefulness was at its highest point, till sunset, and even later. At the same time it happened that there came into my hands an interesting work on the song of birds by Dr. V. Häcker, of Freiburg-in-Breisgau, in which I found some useful remarks on the autumn and winter singing of birds, which seemed to point to the desirability of further close observation out of doors. I was then living close to the Park at Oxford, and was in the habit of going out daily before breakfast, as well as of crossing the Park two or three times a day on my way to and from college; and I determined to note down each day throughout the winter what birds I heard singing, and especially to record the voicefulness of the Song-Thrush. This I continued to do until the middle of March. My chief object was to ascertain, if possible, whether the great outburst of song which I had noticed was psychologically connected with the breeding season, or should be reckoned by itself as merely the expression of bodily comfort, arising from abundance of food and a mild temperature.* I wished to know how long it would go on without interruption—whether there would be any considerable break before the true spring song began, and, if so, how far it would be due to a change of temperature. I did not, as will be seen, arrive at any very definite conclusions, but I hope to be

* On this disputed question see Darwin, 'Descent of Man,' ii., 51 foll.; Wallace, 'Darwinism,' 384; W. P. Pycraft, 'Story of Bird-life,' p. 93, foll.; the writer's 'Summer Studies,' ch. vi; and references to German views will be found in Häcker, 'Der Gesang der Vögel,' p. 29, foll.

able to continue observing with more certain result in future winters.

In the 'Zoologist' for 1894, pp. 410, foll., Mr. C. V. Aplin had a short paper in which he clearly distinguished the autumn song of some birds—*e.g.* the Robin and the Chiffchaff (*i. e.* the song resumed after the moult, often feeble and imperfect)—from the winter song, which in some cases begins in November, and continues more or less regularly till breeding begins: this winter song (if I understood him rightly) he regarded as undoubtedly the beginning of the spring or breeding song. Dr. Häcker does not express himself quite so decidedly, and, on the whole, he seems disposed to take a different view; and as his remarks are interesting in several ways, and are the result (as he tells us in his preface) of twenty years' observation, I take leave to translate them here ('Der Gesang der Vögel,' p. 52):—

"In the renewal of song in autumn, when the Robin (*Erythacus rubecula*), the Blackbird (*Turdus merula*), and the Chiffchaff (*Phylloplecte rufa*) are conspicuous, we have to do, in distinction from the summer song, exclusively with a kind of voice-play (*Spielstimmung*), as Darwin pointed out; in fact, with a psychical condition, which, for example, is to be found in adult dogs, which delight in play, and invite their masters to join them.

"The same holds good in part for those birds which, in the middle of winter—*i. e.* long before the beginning of the breeding season—let us hear their song. To these belong the Wren (*Troglodytes parvulus*), whose breeding falls in April, and the Dipper (*Cinclus aquaticus*), which normally has its first brood in April, and its second in June. Here we have to do with birds which are exceptionally robust, and whose perfect adaptability to a winter climate is plain from the fact that here at least (*i. e.* in Breisgau) they are true residents with a limited winter range. A few hours of winter sunshine is enough to produce in these birds that increase of bodily and psychical comfort which leads to the use of voice-play.

"I have attempted above to explain the meaning of the different sexual cries in connection with the preservation of the species. Only in a few cases—namely, in those of the autumn and winter song of a few resident species—are we unable to assign to song a positive importance for the preservation of species or individual.

But the caution needed in dealing with these negative instances is well shown by the example of the Crossbill. It is common to quote this bird as an example of abnormal habit in the physiological sense, since it usually pairs and sings in December and January, breeds in February, and hatches its young in March. Naumann has already pointed out the meaning of this: the bird performs the work of propagation and rearing precisely in the months in which its chief food, the cones of pines, are at their ripest and best, so that the parent birds find it then easiest not only to feed themselves, but to supply their young with the seeds which they convey to them in their crops."

It will be seen from this passage that Dr. Häcker, like Mr. Aplin, clearly separates the true autumn song, heard after the moult, from the winter song which often begins in November; and with this conclusion most field ornithologists will probably agree. As to the meaning of the winter song, he is not so clear; apparently he takes it as in part "voice-play," the result of abundant food and bodily comfort, and as having no immediate connection with breeding, but adds a useful caution suggested by the case of the Crossbill. My observations of last winter, so far as they go, seem to support both his explanation and his warning.

It was on November 17th, a very uncomfortably chilly day, that I first made a note of the great number of Thrushes in song. No doubt Central and Southern England had been visited by a large immigration from the north and east. It was dull, moist weather, chilly rather than cold, and unusually still. I am convinced, though I cannot prove it, that not only old males, but young birds, and even females, were using their voices to swell the chorus: every bird seemed to be making some sort of noise, and there was every variety of performance, from the full, clear utterance of the practised singer to the harsh and wheezy notes of the novice or the female. As I have already said, this vocal activity continued in full swing, without apparent diminution of the numbers, until December 8th, when I left Oxford for the Christmas vacation, the weather all the time being mild and damp. I did not observe any distinct sign of courting or sexual activity.

After leaving Oxford, I was at Kingham, in the north-west of the county, until January 18th, and continued my notes there.

When I arrived the singing was still going on, and I was told that it had attracted notice, as elsewhere. It continued in full strength till the 15th. From that day till January 3rd, in rather colder weather, varied by warm days and cold fog, I heard occasional singing only, as one ordinarily does in mid-winter; on December 20th, 25th, 28th, 31st, which were stormy days, the birds were silent, and left the field vacant for the Mistle-Thrush. Though there were plenty of Song-Thrushes still to be seen, as well as occasionally heard, I think there was a decided diminution in the numbers during the last half of the month. From January 3rd to January 21st, with the temperature varying at 9 a.m. from 25° to 42°, I failed to detect the voice of a single bird of this species.

It may be useful to exhibit the diminution of song between December 15th and January 3rd in the form of a table:—

Dec. 15.	Therm. 38.	Dull and damp. Not many Thrushes singing.
,, 16.	,, 42.	Fine. Not many songs.
,, 17.	,, 42.	Feels colder and drier. Very few songs.
,, 18.	,, 45.	Open and mild. Few songs.
,, 19.	,, 33.	Very fine. Much singing, including Mistle-Thrush.
,, 20.	,, 46.	Strong gale from south. Only Mistle-Thrush singing.
,, 21.	,, 38.	Fine. Several Thrushes singing.
,, 22.	,, 28.	Fine and frosty. Two Thrushes sang.
,, 23.	,, 25.	Cold fog. One Thrush sang.
,, 24.	,, 30.	Very cold dense fog. One Thrush sang at 9.30.
,, 25.	,, 52.	Warm and drizzly, with wind. Mistle-Thrush only.
,, 26.	,, 42.	Soft day after rain. One Thrush sang after sunset.
,, 27.	,, 45.	Wet and rough. Two or three Thrushes sang.
,, 28.	,, 45.	Heavy gale from west. Not a voice.
,, 29.	,, 30.	Very fine. No Thrushes sang.
,, 30.	,, 40.	Dull and drizzly. Heard one Thrush.
,, 31.	,, 38.	Great gale. No birds singing.
Jan. 1.	,, 35.	Cold rain. One or two Thrushes sang.
,, 2.	,, 28.	Fine and sunny. One Thrush sang.

On January 3rd a short period of cold and foggy weather set in, with one heavy fall of snow. I heard no Thrush during this cold weather, nor during the very rapid thaw of the 9th and 10th; nor did two fine days, the 14th and 15th, which brought out the love-note of the Blue-Tit, and all but induced the Chaffinch to begin, stimulate our Thrushes to start their song again. I returned to Oxford on the 18th, a warm, damp day (therm. 42°),

where I found many birds full of voice, but not the Thrushes. On the 21st, however, with the temperature 45° , and a feeling of spring in the air, there was a general awakening, and this continued till the 29th, when another spell of cold began, and, in spite of one or two fine days, silence prevailed. On February 4th (therm. 28°), a cold but still day, they sang again freely; and from this time onward may be said to have continued in song, with occasional interruptions, but never in the same numbers, or with the same noisy vociferation, as in the autumn.

The conclusions to be drawn from these observations are not altogether clear to me; but I may venture upon a few remarks on them.

First, as to the general conditions of voicefulness, I think it may be safely said that you will not hear the Song-Thrush in strong wind, nor snow, cold fog, or other uncomfortable wintry weather. What really spurs them to sing is still, open weather, when food is easy to get at: sunshine is not a necessity, and the temperature is of no great account until it becomes really low, and continues so for some days. For example, on March 25th, when I was writing these notes, a bitterly cold day of snowstorms, a Thrush was singing finely at 6.45 p.m., with the thermometer at 26° .

Secondly, as regards the meaning of winter song, and its possible connection with breeding, the entire silence of this species between January 3rd and January 21st might suggest a distinction between a winter song, stimulated only by the enjoyment of food and bodily comfort, and the true spring or breeding song. I do not, however, feel by any means sure that such a distinction is to be drawn, without modification; I am inclined to think that the great outbreak of song in the autumn was, in the case of mature birds at least, a forecast of the coming breeding-season. This species is an early breeder, and eggs have been found as early as February 28th*: and the silence in January might have been accidental, or have occurred at another time, according to the weather, just as it may also sometimes be noticed in April or May. Birds that have already lived through one or more breeding-seasons must, I should imagine, have come to associate the full vocal powers they have acquired with the joys

* H. Saunders, 'Manual of British Birds,' p. 4 (2nd edition).

and duties of that time, and may revert to it by association of ideas when they are well-fed and comfortable in November and December. But the majority of the singers of last autumn—immigrants, birds of the year, and females—were very possibly using their voices only in what Dr. Häcker has called “voice-play.” Thus, if by any chance I am right, there is a twofold element in the winter song of this species; but further observations may be expected to correct or modify a conclusion which I only advance with hesitation.

It may be as well to add that in the North of England the Song-Thrush does not seem to be a familiar winter singer, no doubt owing to the southward migration of this species in the autumn. I am never myself in the north during the winter, and have to rely on the evidence of others; but I find Waterton, in his characteristic essay on the Stormcock, describing the latter bird as “cheering us with his melody during the dreary months of winter when the Thrustle and the Lark are silent.” Lately Mr. E. P. Butterfield, of Wilsden, near Bradford, in the natural history column of the ‘Yorkshire Weekly Post’ (Dec. 29th, 1900), asked “whether any of your readers have heard the Song-Thrush in full song in Yorkshire in December”; and added that he himself had not, even in the most favourable season.

I add a few notes about the winter singing of our two other common Thrushes, the Mistle-Thrush and the Blackbird. The former bird is a curiously irregular singer, and in his habit of singing in the face of a strong wind he stands alone. I did not notice him this year till December 19th, and it is in December, I think, that his voice is most conspicuous. That the mid-winter singing of this species is the beginning of the spring or breeding song is almost certain; for he is a very early breeder, and is rarely in difficulties for food to support his vigorous vitality. Like the Crossbill, he finds much of his favourite food in perfection in December and January—viz. the berries of the ivy, yew, mistletoe, &c.

As regards the Blackbird, it is worth noting that, in the passage translated above, Dr. Häcker mentions this species as regularly singing after the moult (*i.e.* in September) at Freiburg-in-Breisgau; and Gilbert White says the same of the Selborne Blackbirds (letter xl. to Pennant, and letter ii. to Barrington).

As neither I nor any of my friends have ever heard it at that time, I wrote to Dr. Häcker for further information; but my letter never reached him, and was returned to me. White may probably have been mistaken; his statements in these two letters seem to have been the result of only a single year's observation. Mr. Witchell quotes White in his 'Evolution of Bird-Song,' p. 65, adding that he had probably heard the *young* birds sing; and recently explained, in a letter to the 'Yorkshire Weekly Post,' that he has often himself heard young Blackbirds pipe in autumn, but has never heard the full song at that season.

In winter the Blackbird is an occasional, but only an occasional singer.* I have never heard him myself between July and January, and rarely before the middle of February; and Mr. T. Phipps, an observer upon whom I can fully rely, and who was postman in this district for fifty years, assures me that his experience has been the same. Mr. Aplin, however, sends me word that he has heard it this winter on December 7th, 12th, and 22nd, singing in a low tone, but adds that he considers it most unusual for a Blackbird to sing in autumn, or before its usual time. Its song is, no doubt, often confused by casual observers with the notes of the Mistle-Thrush, Starling, or even the Song-Thrush. When it is heard earlier than January, the song is probably to be connected with the breeding instinct, rather than explained as mere "voice-play."

* I have collected a good deal of evidence on this subject, and on the winter singing of other species; but this paper has become quite long enough already.

NOTES AND QUERIES.

MAMMALIA.

CARNIVORA.

The Aardwolf (*Proteles cristatus*) in the Transvaal Colony.—On Aug. 10th, 1900, when coming back from a visit to Zuurfontein Station, I saw an Aardwolf out on the veld. I drove towards him, but he took no more notice of me than he would of a post. When I got to within a distance of about twenty yards from him he looked up and stared at me. I approached a few yards nearer: there stood the brute in broad daylight, not fifteen yards distant, contemplating me with the utmost *sangfroid*. I called out, whereupon he uttered a few snorts or grunts, and made off at a clumsy trot, his hind quarters sloping so much as to appear a burden to him. After putting a dozen yards or so between us, he stood still again, and watched me slyly. He appeared to be doing an extraordinary thing, *viz.* stalking "Crown-headed" Lapwings, or "Kwikies," as they are locally termed, as he quietly continued to slink after them. His utter contempt for my presence seemed to point to the fact that he knew perfectly well I had not the wherewithal to harm him. After shouting and driving towards him, he made off again at a trot, every now and then breaking into a clumsy gallop, and ever and anon standing and looking back. It was half-past five in the afternoon, and the sun was not yet touching the horizon. Extreme hunger could have alone driven the brute out at such an hour. A few evenings before a friend of mine shot one about three miles from the spot where I saw my specimen, though it was absolutely dusk and among trees, whereas my animal was out on the flat veld.—A. C. HAAGNER (Modderfontein).

[This animal appears to be changing what was considered as its purely insectivorous diet. Mr. W. L. Sclater ('Mammals of South Africa,' vol. i. p. 82) has recently recorded that farmers have found that their sheep and kids are attacked by this animal; and Mr. Haagner has now seen it hunting Lapwings. Nicolls and Eglington, in their 'Sportsman in South Africa,' seem to correctly describe the food of this animal as consisting "of insects and reptiles, as well as small animals (mammals) and birds."—ED.]

Suggested Mimicry of the South African Weasel.—It seems possible that the Snake-Weasel (*Pœcilogale albinucha*) of South Africa mimics the Polecat or Muishond (*Zorilla striata*) of the same region. How this is done, in what direction it lies, and the reasons, I will proceed to try and explain, or rather offer the following explanation:—Both these animals are black with white stripes down the back; both are moreover very much alike in looks, notwithstanding the marked generic differences. Now "*Zorilla striata*" is defended by its power of emitting a strong odour at will, thus resembling the American Skunks, and "*Pœcilogale albinucha*" is not so defended. As they reside in much the same localities, and, as far as I know, their habits are also similar, we may infer herefrom that the latter animal mimics the former. The Stink-muishond, as the mimicked is generally called in South Africa, is nocturnal, although it may be, and has been, caught wandering about shortly before and after sunset. They are noted poultry-stealers, and if one, during a nocturnal visit to a poultry-yard, happens to be disturbed or irritated in any way by something or other which may cause the animal to emit the renowned (?) stench, the smell is fearful and very apparent to anyone entering the poultry-yard next morning, and may hang about the place for days. I have seen this animal chased by Dogs, and no sooner did they get near the Polecat than it halted, humped up its back, emitted a sort of purr, raised the long hair on its back, and—phew! the Dogs made off in the opposite direction, howling dismally. Sportsmen-friends of mine tell me that Dogs do attack this animal.* In this case they have another trick to fall back upon—that of feigning death. Here the smell always present in the animal must no doubt assist in completing the delusion. I have myself seen one, on getting timely knowledge of the approach of Dogs, quietly stretch itself out and feign death, allowing the canine enemy to approach quite close, and even smell it. The Dogs in this case do nothing but walk away again. Now the Weasel, through natural selection—adaptation to circumstances—may mimic the warning colours of the Polecat. In addition to this it feigns death as good as the mimicked animal, and, what is more, has much the same odour as the Polecat, without the gift of being able to emit the awful stench so characteristic of the former. I would be very glad if any reader of 'The Zoologist' would give his experiences or ideas, either to corroborate the above or prove it without foundation. I think it well worth while investigating, and as matters stand I think I am justified in my opinions and deductions. Of course, until more is known of the habits of these two animals, one will never be able to reason clearly.—ALWIN C. HAAGNER (Modderfontein, Transvaal Colony).

* The Polecat is, however, bound to have many enemies less plucky than a Dog.—A. C. H.

RODENTIA.

Climbing Powers of the Long-tailed Field-Mouse.—In 1899 my friend Mr. C. Oldham contributed a note to 'The Zoologist' (p. 27) on the climbing powers of the Long-tailed Field-Mouse, in which he described its habit of using an old birds'-nest as a platform on which to eat the hips gathered from the wild rose trees, or acorns carried up from the ground. For some time before we captured a number of Long-tailed Field-Mice on these nests, we had been puzzled by the litter of gnawed kernels and pulp which filled the nests, and, although we made many enquiries, we could not find out that anyone had ascertained what species was responsible. A few days ago I was looking through a volume of children's poems—Mary Howitt's 'Sketches of Natural History,' 1834, and I came across the following verse in a poem on the Wood-Mouse:—

" In the Hedge-Sparrow's nest he sits,
When its summer brood is fled,
And picks the berries from the bough
Of the hawthorn overhead."

From the context it is perfectly clear that Mary Howitt refers to *Mus sylvaticus*. In nests, besides hips, we have found haws, seeds of the blackberry and holly, and stones of the sloe, from all of which the kernel has been extracted in a similar manner by chiselling off one end.—T. A. COWARD (Bowdon, Cheshire).

The Coloration of the Variable Hare.—My friend Mr. Coward's note on the above subject (*ante*, p. 73) interested me not a little, especially in regard to some questions indirectly touched therein. Firstly, regarding the introduction of Scotch Hares into England or Wales, and the retention by them when in presumably milder surroundings of their original white winter coloration, I am aware of several similar instances. In fact, it may be taken as the *rule*, that when variable Hares are transferred from Scotland to some more southern country they will continue to assume their white winter coat, apparently to the same extent as when in their natural surroundings. Sooner or later, however, the habit is usually dropped, but I am in want of exact statistics as to the manner in which the change is effected. I am not aware, in fact, whether the originally transferred individuals gradually change less and less white in each succeeding season, or whether it is only in their progeny that the white colour ceases to appear. Mr. Coward's letter seems to supply a fact of interest in this connection, since he states that the Hares which formed the subject of his note are the descendants of some Perthshire animals which were exported about twenty years ago. In this case, unless, indeed, the climate of their new home is sufficiently severe to keep the white winter coat in constant use, we might perhaps assume that the loss of the winter coat may not be effected even after a

period of twenty years. Secondly, Mr. Coward's words—"the Hares were still in their white winter pelage, though most of them had already patches of brown about the head and flanks" (in March, 1899)—seem to imply his surprise that the mild weather had not the effect of causing the Hares to reassume their darker pelage. Now it is my experience that, whatever be the cause and date of the assumption of the winter coat, once assumed it cannot be thrown off until the regular annual moulting time—in my experience the first week of May. Thus I have already recorded the incongruous spectacle of a Hare of Scotch blood browsing the flowery pastures of late April in the South of Ireland, the while clothed in a conspicuous livery of white. And the same thing happened in the case of a Hare kept captive at Cambridge. The patches of brown seen by Mr. Coward were not then, as his remarks would imply, the advance guard of the dark coat of summer, but the rearguard of that of the previous summer, to which the winter change had never extended. Before concluding this short note, I should like to mention (what, indeed, has been partly the cause of my having written) how grateful I shall always be for any information which may tend to throw light upon the interesting question of winter whitening in animals.—G. E. H. BARRETT-HAMILTON (Kilmanock, Arthurs-town, Waterford, Ireland).

A V E S.

Curious Accident to a Young Mistle-Thrush.—A friend of mine in Hampstead caught a young Mistle-Thrush (*Turdus viscivorus*) in his garden, which was not old enough to fly, and put it into a cage to preserve it from Cats. On handling the bird the first time he noticed what appeared to be a skewer sticking out about half an inch near the left shoulder, and which was apparently securely imbedded. When examining the bird I found that a twig was firmly fixed, and upon pulling out the same with some effort it proved to be an inch and a half in length, and an eighth of an inch in diameter. The point was stuck into the membrane of the left wing close to the bend, and penetrated nearly half an inch below the skin. The bird did not appear to suffer any pain, though quite a deep hole was left where the twig had been. The piece of stick is before me as I write, and is clotted with some little blood, and a number of small feathers are adhering to the larger half. Had the bird not been relieved from the stick it is conceivable that the latter would have become even more firmly imbedded, and ultimately prevented the use of the wing altogether. The outer end of the twig has apparently been broken off, which tends to show that it may have been considerably longer when first it came in contact with the bird. One solution as to how the bird became transfixed is that it may have fallen out of the nest on to a small branch with an upturned

sharp-pointed twig, and in falling the latter, being firmly fixed in the bird, was broken off from the main stem.—BASIL W. MARTIN (Elm House, Hampstead).

Active Mimicry by the Chaffinch.—I recently observed the nest of a Chaffinch (*Fringilla cælebs*) near my house, in a hedge by the turnpike-road, and built in a blackthorn-bush in full bloom. In order, I imagine, to make the nest as little distinguishable as possible from its surroundings, the birds had dotted it all over with small pieces of white paper; one fragment which I detached appeared to be blotting-paper. Passing the place a few days since I noticed that all the bloom had fallen from the bush, and that all the pieces of paper had been removed from the nest. This had not been disturbed, and contained eggs. It seems a fair inference that the birds recognized that their object in putting the scraps of paper about the nest was likely to be defeated when the blossom fell away, and accordingly removed them.—R. H. RAMSBOTHAM (The Hall, Meole Brace, Shrewsbury).

Rose-coloured Pastor in Kent.—A fine adult male of the Rose-coloured Pastor (*Pastor roseus*) was obtained on May 14th last near Appledore, in Romney Marsh, Kent. It was sent for preservation to Mr. G. Bristow of this town, to whose kindness I am indebted for the privilege of examining the specimen in the flesh.—L. A. CURTIS EDWARDS (31, Magdalen Road, St. Leonards-on-Sea).

[This record is an interesting one to ornithologists, but describes a distinct disregard to the laws relating to a close-time for birds.—ED.]

The Lesser Spotted Woodpecker (*Dendrocopos minor*).—I have read Mr. Stanley Lewis's note (*ante*, p. 184) with much interest, but I regret that I cannot support his suggestion that this Woodpecker produces its vibrating sounds by any exercise of the laryngeal muscles. In a note which I drew up for Dr. A. G. Butler, and which he printed at length in 'British Birds, their Nests and Eggs' (vol. iii. p. 29), I have discussed the subject. The method by which the vibratory sound is produced is, that the bird employs its bill to strike one particular piece of bark again and again *with extraordinary rapidity*. It is not peculiar to either sex. Both sexes are expert in the production of this curious effect. In 1894 it was my good fortune to acquire a pair of Lesser Spotted Woodpeckers. They lived in an aviary-cage beside my bed, and entertained me with their lively actions from break of day onwards. They knew me so intimately that they allowed me to follow their every movement. I wrote pages and pages about them with the birds at my side, when the majority of people were sleeping soundly. The male died in the following winter, but the female lived in my possession until she escaped through an open window in the

summer of 1895. I feel sure that if Mr. Stanley Lewis will keep this Woodpecker in captivity, he will endorse my explanation of the way in which the sound which has interested him is produced. There is nothing so satisfactory as personal experience.—H. A. MACPHERSON (Pitlochry, N.B.).

Red-footed Falcon (*Falco vespertinus*) in Shropshire.—On May 18th a specimen of this rare Falcon was shot near Shrewsbury, and I examined it in the flesh. It is an immature female measuring 12 in. long; wing not quite 10 in. Amongst the contents of the stomach was an unmistakable Shrew (*Sorex vulgaris*). Few birds of prey except Owls will eat Shrews, probably because of their odour; so it is of interest to find that these form part of the diet of *F. vespertinus*. As the specific name indicates, this species seeks its prey chiefly in the evening. It has occurred twice previously in Shropshire (cf. 'Fauna of Shropshire,' p. 137).—H. E. FORREST (Shrewsbury).

Nesting of the Pigmy Falcon (*Microhierax eutolmus*) in Upper Burma.—The simple but wasteful system of taungya cultivation is pursued by a large proportion of the inhabitants of the villages in Upper Burma, and also by the wild tribes—Karen, Shans, Lishaws, &c.—who keep, as a rule, to the wilder tracts in the mountains. In cultivation by taungya, a patch of forest is chosen, often containing valuable timber, and the whole of the growth on it is felled, and left for a couple of months to dry, and then burnt, the ashes forming a rich manure. Occasionally a number of the larger hardwood trees, such as Pyinkado (*Xylia dolabriformis*), Pyinma (*Lagerstroemia flos-reginae*), &c., are only girdled—i.e. the bark and sap-wood cut through all round, and the tree allowed to die and decay standing. These solitary dead trees in taungya areas are much frequented for nesting purposes by the various wood-boring birds—Woodpeckers, Nuthatches, Barbets, &c. On April 23rd, 1899, in a deserted taungya alongside the high road leading from Thabeitkyin, on the banks of the Irrawaddy above Mandalay, to Mogok, the site of the famous ruby mines of Upper Burma, I saw a Pigmy Falcon (*Microhierax eutolmus*) disappear into a hole on the under side of a branch excavated in a large dead tree. The dead and splitting bark and some horizontal lower branches made the ascent to the nest easy, and I was able to climb up and inspect the nest-hole. This was evidently once made by a Barbet, but whether the rightful owner had been ejected by the Falcon, or whether it was an old Barbet's nest-hole, I could not say; anyhow, it was occupied by the little Falcon. On enlarging the hole I was able to look into the nest, which was laid at the end of a tunnel dug out of the wood, about fifteen inches long. Nest, properly speaking, there was none, but where the tunnel ended in a slightly enlarged and oval chamber there was placed a fairly firm pad of chips of wood, a few leaves,

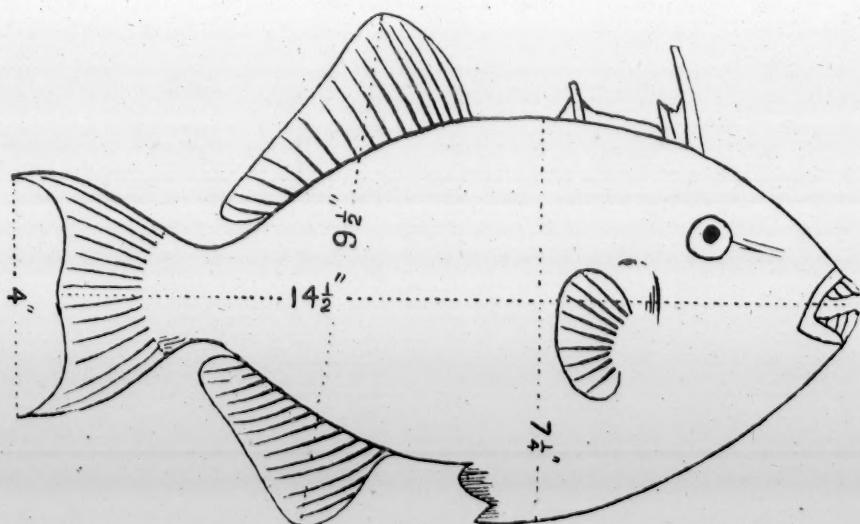
with an upper stratum quite two inches thick composed almost entirely of the wings of Cicadas, with a few butterfly and moth wings interspersed therein. To my disappointment, I found neither eggs nor nestlings. During the rifling of their nest both the male and female Falcons sat on a neighbouring tree, but made no demonstration of any kind. Further south, in Tenasserim, I found the eggs of this Falcon in a precisely similar situation early in April, as well as I can remember. That nest was composed almost entirely of butterfly wings.—C. T. BINGHAM.

AMPHIBIA.

Palmate Newt (*Molge palmata*) in Carnarvonshire.—On May 12th I found a small pond at the back of the Little Orme's Head teeming with Palmate Newts. There were also numbers of Great Crested Newts, but no Common Newts, nor could I find any of the latter elsewhere in the district. The male Palmate Newts were all showing in perfection the webbed feet and tail-filament characteristic of the breeding season. The females were still full of spawn, and some that I brought away have laid eggs since in the aquarium.—H. E. FORREST (Shrewsbury).

PISCES.

File Fish off Brighton.—Thinking it may interest the readers of 'The Zoologist,' I am sending (in place of a description) a rough sketch of



a File Fish (*Balistes capriscus*), taken about five miles off Brighton on the 10th October, 1900, which has been presented to the Brighton Museum by

Mr. W. F. Goodwin. Though common in the Atlantic, I believe its capture on this part of the coast is a very rare occurrence.—HERBERT S. TOMS, Acting Curator (Brighton Public Museum).

[The above figure differs somewhat from that given by Couch, in which the apical margin of the tail and the outer margins of the fins are very much more concave. I have, however, compared the drawing sent us by Mr. Toms with a spirit specimen from Madeira in the British Museum, with which it agrees. Jordan and Evermann, in their recently published 'Fishes of North and Middle America' (p. 1701), describe its distribution as "Tropical parts of the Atlantic; occasionally northward in the Gulf Stream; very common on our coast and in the Mediterranean, rarely north to England." Under the name of *Balistes carolinensis*, they figure the species, in which the tail and fins differ from Couch, and agree with our diagrammatic figure.

Of this rare fish, Couch gives three instances in which it has been caught in British seas. In 'The Zoologist' (1868, p. 1027) Mr. Cordeaux reports a capture off the Flamborough coast; but Messrs. Clarke and Roebuck (Zool. 1884, p. 183) state that they had satisfied themselves that that fish was an Opah. In the same volume (p. 472) is an extract from the 'Field,' recording a capture near Folkestone in September of that year. The peculiar structure of the first dorsal fin is generally known. Frank Buckland wrote that he had shown it to his friend, a well-known gun and rifle maker of Newcastle-on-Tyne, who was so struck with its conformation that he promised to try and adapt its principle for some of his safety-rifle locks (Nat. Hist. Brit. Fishes).—ED.]

THE PROTECTION OF BRITISH BIRDS.

THE Society for the Protection of our British Birds—a society which is trying to do a great deal of good in many ways—some time ago offered two prizes of ten and five pounds respectively for the two best essays on the subject. These have just recently been awarded. The question of protection to be accorded to our British birds, many of which are sadly in need of it, is a somewhat difficult one to deal with. That overworked, heterogeneous combination known as the Government has, in these stirring times, but little space to devote to legislation on the matter; and even were legislation satisfactorily accomplished, there yet remains the still more difficult matter of enforcing the law. Unfortunately, as at present administered, the Wild Birds' Protection Act is, in many places, little better than a dead letter, and were it not that private enterprise frequently steps in, it would be reduced to a mere farce. What is the use of fining a man a nominal sum, when he has a wealthy collector behind his back, ready

and willing to pay all his expenses, with a substantial margin for himself to boot? Is this likely to prove any deterrent? I would have every bird that was not proved to be distinctly injurious to agricultural or horticultural produce properly protected for a certain season by a proper law, properly enforced; and should any *bonâ fide* collectors desire eggs or specimens of any particular species, they should, on payment of a fixed fee, receive a proper permit to acquire the same. When the true history of the gradual extermination of many of our rare and interesting birds comes to be written, a very heavy indictment will have to be laid at the door of the egg-robber, who takes every clutch that he can come across, if perchance one should differ slightly from the rest. Drainage and reclamation of the bird's favourite haunts, and the increase and spread of an ever-growing population, are very important factors in the case, but the trail of the egg-collector is over them all; and the worst of it is that many collectors pose as naturalists with their right hand, and with their left employ men, honest enough fellows as a rule, but in these hard times glad enough to earn an additional penny, to collect for them every clutch of the eggs of some particular bird that they can come across. Such a collector can only be compared to his ornithological prototype, that arch-robber the Carrion Crow. Birds which are rare in one particular place are generally pretty common in some other locality; and it has always been a mystery to me why such ridiculously high prices should be offered by collectors for certain British taken eggs, when these are common enough upon the Continent. The eggs of certain birds have acquired an altogether fictitious value, and as a consequence are practically farmed by certain people to whom their nesting haunts are known. Here in Yorkshire a great amount of good has been done by the extension of the close-season, so that now most of the vast concourse of sea-fowl that breed in the cliffs, in certain places, get off their young in safety; but before that happy event, as I have mentioned elsewhere, cruelty, which I can only characterize as damnable, used to be practised. So-called sportsmen used to go out, on the opening day, with the avowed intention of firing away so many cartridges; they never even troubled to pick up one quarter of what they shot; and I have witnessed the pitiable sight of a wounded Guillemot, with broken wing and its wounds exposed to the salt sea-water, trying to clamber up the cliff with a fish in its bill, to its starving young one, many of which perished through the death or maiming of their parents.

Conversant as I am with almost every phase of Yorkshire bird-life, I have often procured immunity for certain species by the judicious distribution of a little of the current coin of the realm; but at the same time I have at times been obliged to witness scenes of which I thoroughly disapproved, but which I was powerless to prevent; and so, to a certain

extent, like Naaman the Syrian, I have been compelled to bow myself down in the House of Rimmon. Ladies have much to answer for as regards the slaughter of birds. At a certain village on the coast a large trade is still done in shooting the beautiful Terns or Sea-Swallows, and the Kittiwakes, for millinery purposes. Seven boats used to be employed; now, I am glad to say, there are but two. Thanks to the afore-mentioned extension of the close-time, most of the Terns are gone, and the pretty tame little Kittiwakes provide the greatest number of victims. During the third week in October, 1899, 120 were shot in one day, 96 on another, and 60 on the morning of October 30th. Some 360 were shot during the week. A man from London was occupied in skinning the birds, which at this season will keep for about a week. Some 260 birds were hanging up on October 30th, waiting to be skinned. When this operation is over the birds are packed up and forwarded to London. Sixpence apiece is the price paid. Now, I do not blame the men who obtain these birds—they are hard-working, honest fellows, not overburdened with this world's goods—nearly as much as I blame those who employ them, or those who reap the fruit of their labours. *Qui facit per alium, facit per se.* The men pursue a perfectly legitimate calling, when everyone is free to shoot what they will; but this wholesale destruction of beautiful birds is very grieved, all the more so when one considers that it is perpetrated for the adorning of ladies' hats and bonnets; and I feel sure that if only those ladies who love to adorn themselves with birds' feathers, wings, and bodies knew half the abominable cruelty that is perpetrated, in various parts of the world, at the shrine of the Goddess of Fashion,—feathers plucked out of the living bird, wings torn off while they are yet alive, and the mangled remains thrown back on the salt-water to linger in agony, till death comes as a merciful relief to their sufferings,—they would for ever forswear ornaments purchased at the price of such terrible suffering. With regard to the senseless destruction of those most useful birds, Owls and Kestrels, I am very glad to say that a far more enlightened view obtains at the present day, both with game-preservers and with game-keepers, and it is comparatively seldom that one comes across their mangled remains hanging up in the keeper's "museums." That most excellent and practical ornithologist and lover of birds, the late Lord Lilford, used to say that the man who would shoot an Owl was only fit for a lunatic asylum, and the sheltering ægis of many a landowner is now extended to them. One thing I should like to see entirely abolished by Act of Parliament, and that is that most iniquitous institution known as the "pole-trap." I regard it as a veritable invention of the Evil One, and I make no excuse for having buried dozens of them. They not only catch the various species of Hawks and Owls for which they are set, but I have known Cuckoos, Nightjars, Wheatears, Ring-Ouzels,

Meadow-Pipits, and even Grouse to be caught in them ; and these unfortunate birds are often left for hours, sometimes for days, hanging in lingering misery with a broken limb, till either death from exhaustion, or a knock on the head from a belated keeper on his weekly rounds, at last puts an end to their sufferings. To my mind the best mode of opening the eyes of the public to the wanton and senseless destruction of birds, is by getting the children in the various schools interested in them, and taking them out at least on one afternoon during the summer months, and explaining to them the various birds, mammals, reptiles, insects, flowers, &c., that are to be met with in such a ramble ; also by the giving of lectures by practical people, who know what they are talking about, to the landowners, game-keepers, collectors, gardeners, &c. A vast amount of nonsense is unfortunately both talked and written upon the subject by the ignorant, and then far more harm than good is unwittingly wrought. Some few are, I believe, beyond reclamation.

Much may be done by private enterprise, and here in Yorkshire several of us, who are much interested in preserving from extinction some of our rarer breeding species, have employed a watcher with marked success. Many landowners and game-preservers only need to have the usefulness of certain birds pointed out to them, by those who know what they are talking about, to give immediate orders for their protection ; and children can be easily trained to take an interest in these things, and not destroy them. I would be the last to advocate Draconian methods, as in these days by so doing we should defeat the very object that we desire to attain, and many a well-known naturalist has been induced to take up some special study, through the pleasure derived from a day's bird's-nesting in his boyhood. Nor would I ever try to hinder the perfectly legitimate shooting of birds in moderation during the proper season ; but while I yield to no one in my love of sport—in pursuit of which I have sat for hours in a hole dug out on the mud flats, waiting for wildfowl to drift in with the tide or pass over at flight-time, with the thermometer standing at many degrees below freezing point ; have worked a single-handed punt on the flood water till my hands were so numb with ice and frost that when I got up to the Ducks I could hardly pull the trigger of the big gun ; and have been out at sea all day in a small yacht in a driving snow-storm, on the mere chance of a shot—yet I can safely say that I have never killed for killing's sake. The birds I have shot were mostly waifs and strays, here to-day and gone to-morrow ; and it gives me far greater pleasure and interest to lay aside the gun and rifle, and take up the field-glass and watch the birds at home in their natural haunts and surroundings. I would far sooner do this than destroy and preserve for my collection any of the rare and beautiful birds that would remain and breed with us, if only their arch-enemy, the man with the gun,

would allow them to do so. I believe most fully in the principle of "live and let live," and consider it a thousand pities that certain birds—*e.g.* game—should be protected at the expense of the extinction of certain other beautiful birds—*viz.* the Jay and the Magpie. Of course I well know that these two are inveterate egg-stealers, nor would I for a moment recommend too many to be kept on an estate, but a pair or two add much interest and beauty to the landscape; and I hold that no true sportsman would utterly exterminate these birds, even though they caused him to lose a few game-birds' eggs every year. In the same way I am glad to say that the stately though destructive Heron is not utterly exterminated on our trout streams, and I hope devoutly that it will be many a long day before such is the case. To sum up, I do not think that any real assistance can be expected from public bodies in the matter of bird protection. They hesitate to devote public funds to matters which they, in common with many officers of the law, look upon purely as a question of sentiment; and, therefore, if any real good is to be done, our sheet-anchor is private enterprise. We have legislation dealing with the matter, but unfortunately those who are most eager for legislation very often, when they have got it, are the most remiss in seeing that it is enforced.—OXLEY GRABHAM.

[Among the most destructive agents to bird-life, I would instance village children and Cats. On the Surrey hills I have absolute knowledge of the eggs of Blackbirds, Thrushes, and other birds having been cooked and eaten when a *successful* day's collecting has been accomplished, such as the acquisition of more than fifty eggs by one boy alone. During two seasons, among the many nests constructed in my garden at Warlingham, not a single brood was reared. A lady in my immediate neighbourhood possessed three "magnificent" Cats, as I heard them described. These brutes were pampered by day, and always turned out at night. All my garden nests were rifled when the young were nearly fledged. One of these furies I privately buried; the other two escaped many dangers. These Cats were practically bird-eaters.—ED.]

NOTICES OF NEW BOOKS.

A Handbook of British Birds, showing the Distribution of the Resident and Migratory Species in the British Islands, &c.
By J. E. HARTING, F.L.S., F.Z.S. John C. Nimmo.

THIS is really a commentary on the history of British Birds ; it is rather a notebook than a handbook ; it expresses the author's mature opinion, and gives a reference to much of the information on which it is based ; it is not apparently designed as an only book on the subject, but as an indispensable one among others. In classification Mr. Harting remains with the older writers, and commences with the Accipitres,—a matter needing little comment, as the book is outside the discussion of an evolutionary principle on that subject, and is devoted to the status of what may be considered really British Birds, and facts relating to their history.

Mr. Harting, as the late Editor of this Journal, is well acquainted with, and has largely quoted from its pages, most of the records having already passed through his hands. And here the difficulties of his authorship must have been accentuated. The responsibility of sifting such records, accepting some as beyond doubt, and rejecting others as of a more uncertain character, is considerable. The sceptre requires to be held with judicial tenacity, and kept from the grasp of caprice, whilst the sorrowful reflection cannot be avoided that some of the best observations are made by those who absolutely loathe publication, and whose knowledge thus remains of a purely personal character. The author has shown considerable indulgence in recording reports of British occurrences of the Great Black Woodpecker ; these reports occupy three pages, and are subsequently said to be held by Prof. Newton, on the authority of Mr. J. H. Gurney's criticism in Dresser's 'Birds of Europe,' as almost worthless in nearly every instance.

There are many notes of an antiquarian character which give a particular interest to the volume ; on entries found in the

'Durham Household Book,' 1530-34, Mr. Harting proposes to change the name of Dunlin to Dunling. The weights of many birds are also given, information not always easily procurable. Our own idea is to have this work interleaved and bound up in two volumes, and used not only as a reference book for British birds—which it undoubtedly is—but to make it an even greater storehouse by the addition of our gleanings and memoranda. A well annotated volume is always a compliment to the book itself.

The coloured illustrations, reproduced from original drawings by the late Prof. Schlegel, represent the heads of two hundred and sixty-two species (male and female), and will no doubt prove a boon to many observers and incipient ornithologists.

The Life and Letters of Gilbert White of Selborne. By his Great-grand-nephew, RASHLEIGH HOLT-WHITE. John Murray.

IT is a coincidence that two English classics—and yet how diverse!—appeared almost simultaneously: we allude to the 'Decline and Fall of the Roman Empire,' and the 'Natural History of Selborne.' The writer of this interesting book has avoided the mention of this literary twinship. White was born in 1720, and died in 1793; Gibbon's birth took place in 1737, and his death in 1794. The 'Natural History of Selborne' was published in 1788, the same year as Gibbon's concluding volumes were given to the world. With the almost certainty that both books will last with the language, and that they have nothing in common, the parallel may be considered closed.

We have had so many editions of the work, that the life of its writer was almost a demand of letters. These two volumes lift much of the veil, and probably tell us all we shall ever know on the subject. We can see that Gilbert White was a genius in the sense of the not universally accepted definition, that that much-used word is the equivalent of the art of taking pains. He was an ardent naturalist—born to that vocation—a man of thrift, an old-time clergyman of the Established Church, a courteous gentleman, and one who certainly did not excel in the gentle art of making enemies. Besides this, he ever studied the method of dignified composition, a circumstance, almost as much as its natural history, which has rendered his book a classic.

This long placid life of continuous observation and industrious notation, passed in what has been irreverently called "single blessedness," and apparently without either romance or affliction, was a congenial atmosphere for the production of this little masterpiece. We have now and then a glimpse of the dull conformity of the inhabitants. "For more than a century past," White reports to his Bishop, "there does not appear to have been one Papist, or any Protestant Dissenter of any denomination." We also read, "Selborne is not able to maintain a schoolmaster," Our naturalist also abhorred the "dangerous doctrines of levellers and republicans"; he writes, "I was born and bred a gentleman, and hope I shall be allowed to die such"; while he explains to a correspondent, that "the reason you have so many bad neighbours is your nearness to a great factious manufacturing town." He was as lovable as a Vicar of Wakefield, but not so foolish; he seems to have been really outside politics; and we are told nothing as to his theological views. He was probably a model village priest, and a true friend to his parishioners.

This completes our purview of these two charming volumes, which must find a place with all Selbornian literature. They give us the life of the author of the book we have so often read. The portrait given as frontispiece is probably apocryphal, as we are distinctly told elsewhere that "no portrait or sketch of any kind was ever made of him."

The Birds of Siberia: a Record of a Naturalist's Visits to the Valleys of the Petchora and Yenesei. By HENRY SEEBOHM, F.L.S., &c. John Murray.

OF all books of travel, those written by naturalists for the perusal of naturalists are perhaps the most charming. The cabinet ornithologist can in fancy see his dried skins as living birds, and experience the difference between these creatures in their native haunts, and their mummified remains in cabinet drawers.. This book is a revised and amalgamated form of two previous publications by Mr. Seebohm, strangely entitled 'Siberia in Europe,' and 'Siberia in Asia,' both previously noticed at the time of their publication in these pages; and, like "Japhet in search of a Father," this most interesting volume is still in want of a consistent title, the 'Birds of Siberia' being, strictly, a misnomer.

A definite object was before these two expeditions—the first of which may be said to have owed its initiative to Mr. J. A. Harvie-Brown—and that object was the acquirement, if not even the discovery, of the eggs of the Grey Plover, the Little Stint, the Sanderling, the Curlew Sandpiper, the Knot, and Bewick's Swan. Of these the Knot was the only species unseen, and of the others, identified eggs were obtained and brought home of the Grey Plover, the Little Stint, and Bewick's Swan. But this has been pointed out before; the importance of the present publication is that it combines two volumes which had very much in common, and that it places a charming account of ornithological exploration in a revised and handsome form, and at a reasonable price, at the option of ornithologists, as well as of those who would read a vivid account of the immense contrasts which nature exhibits between her winter and summer solstices in those northern regions.

The Mammals of South Africa. By W. L. SCLATER, M.A., F.Z.S.
Vol. II. Rodentia, Chiroptera, Insectivora, Cetacea, and
Edentata. R. H. Porter.

THE first volume of this monograph has been already noticed (*ante*, p. 77); the second has now appeared, and concludes a section of an important faunistic publication. There are probably many more of the smaller mammals to be discovered in South Africa, but Mr. Sclater has now brought our knowledge up to date, and with these two volumes the naturalist should have little hesitation in the identification of his species. In fact, the scientific or technical description is completed so far as present collections are concerned; other species will be doubtless discovered and described; but the great, or natural history work still requires to be done, and that may well claim the attention of field naturalists for many years to come. We want now to know more of the life-histories and habits of these creatures; we are waiting for the narratives of the Gilbert Whites and Richard Jefferies of South Africa. When these men arise they will find their pursuits made very possible by the aid of these excellent volumes, which to the sportsman should prove a perfect *vade mecum*.

EDITORIAL GLEANINGS.

IN Merck's Annual Report for 1900, a publication recording that year's advances made in clinical and pharmaceutical knowledge, is an interesting contribution on strychnine nitrate, which has for a long time been employed for the destruction of animals or birds of prey, and when applied internally has generally acted as a rather rapid and certain poison. Complaints have, however, been made for a number of years to the effect that at times strychnine has shown itself ineffective, especially with large animals, which has induced the writer to enquire into the causes of this phenomenon. Strychnine and its salts—in particular its nitrate—which is commonly used for poisoning purposes, are, chemically, very stable compounds, and their toxic efficacy remains unchanged for years. Its occasional inefficiency can therefore have its cause exclusively in the mode of administration, the state of the body, especially the extent to which the stomach is charged, and the presence or absence of the tendency to vomit. From Feser's experiments* it appears that strychnine nitrate may be administered internally to Dogs in the solid form without detriment to the degree and promptness of its action. This mode of administration, which gamekeepers and sportsmen are compelled to adopt, has, in six experiments of Feser, invariably resulted in the animals' death, whereas they recovered if the same dose was given in the form of a solution. Feser ascribes this result to the rapid solubility of the strychnia salt in the stomach of Dogs, and the more rapid absorption of the concentrated salt solution.

It is of the utmost importance that the poison should be correctly dosed. According to Kober† the lethal dose of strychnia administered subcutaneously amounts to 0·75 mgrm. ($\frac{1}{90}$ gr.) per kilo ($2\frac{1}{5}$ lb.) in the case of Dogs. Feser fixes, however, 0·5 mgrm. ($\frac{1}{120}$ gr.) per kilo ($2\frac{1}{5}$ lb.) as the subcutaneous dose of strychnia nitrate which kills a Dog with certainty, whilst 1 mgrm. ($\frac{1}{64}$ gr.) per kilo ($2\frac{1}{5}$ lb.) produces the same result with certainty if given internally. According to Fröhner,‡ the minimum lethal dose is for Cattle 0·3–0·4 grm. (5–6 gr.), Horses 0·2–0·3 grm. (3 to 5 gr.), Pigs, 0·05 grm. ($\frac{3}{4}$ gr.), Dogs 0·005–0·02 grm. ($\frac{1}{12}$ to $\frac{1}{3}$ gr.), Cats 0·002–0·005 grm. ($\frac{1}{32}$ to $\frac{1}{12}$ gr.). Unfortunately, data have hitherto been lacking

* 'Archiv f. wissenschaftl. u. prakt. Thierheilk.' 1881, vol. vii. p. 77.

† 'Lehrbuch der Intoxicacionen,' p. 664.

‡ 'Lehrbuch d. Toxikologie f. Thierärzte.' ed. ii. 1901, p. 178.

respecting the weight of different animals. Enquiries were therefore addressed to one of the leading experts on this subject, Mr. Carl Hagenbeck, of Hamburg, by whose courtesy the following data were contributed. The average weight of adult individuals of the subjoined species and varieties of animals is as follows :—

Lions (male)	150-180 kilo (330 to 396 lb.)
(Female Lions are somewhat less in weight.)	
Tigers, Indian and Siberian.....	100-150 „ (220 to 330 lb.)
Bears, Asiatic, <i>e.g.</i> Thibet Bears	80-120 „ (166 to 264 lb.)
Bears, Russian and Caucasian....	100-170 „ (220 to 374 lb.)
Bears, American (Grizzly)	150-225 „ (330 to 495 lb.)
Wolves, Russian and American	30-55 „ (66 to 121 lb.)
Foxes, European	5-8 „ (11 to 17 lb.)

According to these data the certain lethal doses for the internal application of strychnia nitrate are, in round figures, as follows :—

For Lions	0·7 grm. ($10\frac{1}{2}$ gr.)
For Tigers	0·6 „ (10 gr.)
For Bears (Asiatic)	0·5 „ ($7\frac{1}{2}$ gr.)
For Bears (Russian and Caucasian)	0·7 „ (10 $\frac{1}{2}$ gr.)
For Bears (American)	0·9 „ (14 gr.)
For Wolves	0·25 „ (4 gr.)
For Foxes	0·035 „ ($\frac{1}{3}$ gr.)

The lethal doses suitable for birds of prey may be calculated from a table which I. Schneider* has recently compiled for a few domesticated birds. According to this table the internal lethal doses per kilo ($2\frac{1}{5}$ lb.) are as follows :—

For Geese	2·3-3·0 mgr. ($\frac{1}{25}$ to $\frac{1}{20}$ gr.) of strychniae nitras.
For Ducks.....	3·0-4·5 mgr. ($\frac{1}{20}$ to $\frac{1}{15}$ gr.)
For Fowls (which exhibit a remarkable capacity for resisting the action of the poison)	30-140 mgr. ($\frac{1}{2}$ to $2\frac{1}{8}$ gr.)
For Pigeons	8·5-11·0 mgr. ($\frac{1}{8}$ to $\frac{1}{5}$ gr.)

The corresponding experiments showed that it was immaterial both with regard to the intensity of the action and the time required for the fatal issue whether the preparation was given as an aqueous solution, or whether the birds were fed with strychnia wheat.

In the general interest it may be mentioned that, as pointed out by

* 'Monatsschr. f. prakt. Thierheilk.', by Fröhner and Kitt., vol. xi. No. 6, p. 245.

Fröhner, Knudsen,* and I. Schneider,† the flesh of animals killed by strychnia poisoning may be consumed without fear of poisoning after being freed from the entrails, and prepared in the proper manner.

JARROLD & SONS, of Warwick Lane, E.C., invite subscriptions to a proposed volume—‘ Letters and Notes on the Natural History of Norfolk, more especially on the Birds and Fishes, from the MSS. of Sir Thomas Browne, M.D. (1605–82). With Notes by Thomas Southwell, F.Z.S., M.B.O.U.’ We understand that the appearance of this book is dependent on a certain measure of promised support.

IN the ‘ Transactions’ of the Natural History Society of Glasgow, vol. vi. pt. 1, Mr. Hugh Boyd Watt has contributed “A Census of Glasgow Rookeries,” compiled in the season of 1900. The following is a summary of results:—Eight Rookeries inside the city (Dalmarnock, Belvidere, Langside, Camphill, Crosshill, Ibroxhill, Bellahouston, and Botanic Gardens) contain 384 nests; and the other Rookeries of which details are given (say) 911 nests = 1295 in all. Add to this 10 per cent. for omissions and oversights (Mr. Watt’s experience is that he under-estimates the numbers of birds, generally speaking), making a total of 1425 nests. This represents 2850 parent birds, and, assuming that each nest sends out into the world two young birds, there are a further 2850, making the native Rook population of the outskirts of Glasgow last summer amount to 5700 birds.

MR. ALFRED J. NORTH has drawn attention to the importation of foreign mammals in New South Wales as an indirect factor in the destruction of a vast number of Australian Birds (‘ Records, Australian Museum,’ vol. iv. p. 19). The phosphorized oats used as poisoned baits for decreasing the number of Rabbits has also caused the annual destruction of thousands of graminivorous birds, “chiefly the ground- and grass-frequenting species of Pigeons, Parakeets, Finches, and Quail.” To cope with the Rabbits, domestic Cats were also turned loose, with the result that, after the Rabbits had been eradicated or disappeared, the felines—now become wild and of increased size—turned their attention to the ground- and low-bush frequenting birds, destroying large numbers of many species, and causing the total extinction of others where they were once common. The Fox, described as “that acclimatised curse” in Victoria, is not only robbing poultry-yards, but destroying numbers of most interesting species of the Victorian avifauna. In the lair of one of these animals the remains of upwards of thirty tails of Queen Victoria’s Lyre-bird were found, mostly those of female and presumably sitting birds.

* ‘ Monatssh. f. prakt. Thierheilk.,’ vol. i. p. 529, vol. ii. p. 374.
† Ibid. vol. xi. p. 269.

CERTAIN markings sometimes found on the Dolphin (*Grampus griseus*) are now generally accepted as the traces of encounters between these animals and large Cuttle-fishes. These markings are well figured in Flower's paper in the Trans. Zool. Soc. (vol. viii. pl. 1), and the suggestion was first made by Capt. Chaves, of Ponta Delgada.* Prof. D'Arcy W. Thompson, in the last issue of the Ann. and Mag. Nat. Hist., has drawn attention to an older illustration of a Dolphin on which a great Cuttle-fish has left his unmistakable marks. The figure referred to is that on pl. xxviii. (Mammifères), fig. 2, of the 'Voyage de l'Astrolabe,' and represents the lower surface of the head of *Delphinus novæ-zelandiæ*, Q. et G. The writer remarks:—"A glance at the figure will show that the so-called pores are the clear impressions of the suckers of a Cuttle-fish. The Dolphin itself was 5 feet 10 inches long, and we may judge from the figures that the sucker-rings were about, or very nearly, an inch in diameter. We may, perhaps, go a little further, and surmise that while these impressions were left by the suckers, the patches of 'striæ' were produced by tentacular hooks—in short, that the Cuttle-fish which made both was a giant *Onychoteuthis*."

In the 'Athenæum' for June 1st, Mr. James Platt, Jun., has communicated an interesting letter on the Brazilian names of Monkeys.

"There is an interesting little group of five native names of South American Monkeys—*saguin*, *sapajou*, *sai*, *saimiri*, *sajou*—of which the 'Century Dictionary' remarks that they are 'now become inextricably confounded by the different usages of authors, if, indeed, they had originally specific meanings.' The 'Century' vouchesafes practically no etymology of these zoological terms. They all belong to the Tupi language of Brazil. *Sai* is the word for Monkey. *Sai-miri* is its diminutive, from *miri*, meaning little. *Sajou*, on the contrary, is a French contraction for *sajouassou*, as Buffon spells it, or *sai-uassu*, as it should be written, where the termination *-uassu* is augmentative. We thus arrive at three shades of meaning to begin with. Research among old French works of travel would have thrown further light on the distinction between these terms in the sixteenth and seventeenth centuries. Jean de Lery, 1580, carefully separates *çay*, Guenon, from *sagouin*, Marmot. A still better authority is Claude d'Abbeville, whose 'Mission en Maragnan,' 1614, pp. 252-3, adduces all five names, in his orthography *sagouy*, *sapaiou*, *çayou*, *çaymiry*, *çayouassou*. The last he defines as 'grande monne ou grande guenon.' *Sapaiou*, according to him, really is a synonym for *çaymiry*.

"A sixth hitherto unexplained word for a kind of Monkey is *ouarine*,

* In Girard's "Céphalopodes des îles Açores," Jorn. Sc. math. phys. e natur. Lisboa (2), 11 1892.

which occurs in several English dictionaries, such as Webster and Ogilvie, as French. Some naturalists anglicize it as *warine*, e.g. Goldsmith. Littré has it with a reference to Buffon, but without derivation, which is not surprising, as it is a 'ghost-word,' a misreading or typographical error for *ouarie*. The correct *ouarie* will be found in the book I have just quoted, p. 252. In modern French spelling it should, of course, be *ouarie*, which is then seen to be merely a French disguise for the well-known *guariba*, of which a good account is given by Mr. Bradley in the 'N.E.D.' Similarly, the Brazilian *maniba*, the stalk of manioc, is called *manive* by the old French voyagers, e.g. by Bellin, 'Description de la Guiane,' 1763, p. 56."

MICE, as is generally known, will devour lepidopterous pupæ, but that they will also indulge in larvæ is the subject of a communication by Mr. Carleton Rea to the last issue of 'Science Gossip.' The curator of the Hastings Museum, Victoria Institute, Worcester, had secured last May over fifty larvæ of the large Emerald Moth (*Geometra papilionaria*). These he intended to "sleeve out" on growing trees, but delayed doing so, with the result that a Mouse or Mice broke into his collection, and destroyed the greater part of the larvæ.

THE 'ENTOMOLOGIST' has recently reprinted the Address delivered to the Lancashire and Cheshire Entomological Society on Jan. 14th last by Mr. E. J. Burgess Sopp. In it allusion is made to the ever decreasing area of our forest land in this country, with special reference to Delamere Forest. We read that, "on the authority of Mr. Fortescue Horner, one of H.M. present Commissioners for Woods, Forests, and Land Revenues, that five and forty years ago the woodlands of Delamere extended to nearly 4000 acres, since which time 1800 have been cleared for agriculture, and 126 sold. At that period 750 acres of reclaimed land were already let out as farms, a total which at the present day has grown to 2550: so that from 1856 to the end of the century just closed the woodlands appear to have shrunk from nearly 4000 acres to but little more than half their former dimensions." This is a matter to be pondered over by all British naturalists.

DR. A. W. ALCOCK has placed us all under an obligation by printing, as a separate memoir, "Zoological Gleanings from the Royal Indian Marine Survey Ship 'Investigator.'"^{*} As the author remarks in an introduction, "so many of the biological observations made through the medium of the 'Investigator' are buried in reports that are not accessible, and so

* Simla, 1901.

many are scattered through 'systematic' papers where they are easily overlooked, that I have thought it advisable to collect and classify, as a supplement to the 'Summary of the Deep-Sea Zoological Works' published in these memoirs in 1899, all such observations as have been rerecorded since I first became connected with the ship, together with many hitherto unpublished facts selected from my Journal." The branches of zoological knowledge to which contributions are made are—"Illustrations of Commensalism"; Notes on Sexual Characters; Pairing and Viviparity among Marine Animals, and on the sounds made by certain of them; Notes on Stalk-eyed Crustacea; Instances of Protective and Warning Colouration: the Phosphorescence of certain Marine Invertebrates; Peculiarities of Food, &c. We wish that this condensation was made by authors from other publications: biological facts do remain very often buried except to the most industrious students, and even then their knowledge is necessarily of a personal equation.

MESSRS. FRIEGLÄNDER & SOHN, of Carlstrasse II, Berlin, have just brought out a new and revised edition of their 'Zoologisches Adressbuch.' Mention has been already made in these pages as to the usefulness to all naturalists of this universal directory, and in its present revised form it will be still more serviceable. We still prefer, however, the usual and general method of allowing naturalists to communicate their own proper addresses, for we notice that the zeal of the compiler for change has in some cases outrun his discretion. However, all naturalists who have reason to correspond with others—and who has not?—will appreciate this publication.

WE have received the Report for the year 1900 of the Ghizeh Zoological Gardens, near Cairo, written by the Director, Capt. Stanley S. Flower. The following animals were born in the Gardens and successfully reared during 1900:—

- Two Black Lemurs (*Lemur macaco*).
- Two Mongoose Lemurs (*L. mongoz*).
- Seven Dorcas Gazelles (*Gazella dorcas*).
- Three Angora Goats (*Capra hircus*).
- One (Three-quarter bred) Ibex (*C. nubiana*).
- Two Hedjaz Sheep (*Ovis aries steatopyga*).
- Three Guinea Pigs (*Cavia porcellus*).
- Three Turtle Doves (*Turtur senegalensis*).
- Nine Laughing Doves (*T. risorius*).



Zool.

Plate 1.



West, Newman imp.

The Squirrel.
Sciurus vulgaris.